Amendments to the Claims

Claim 1 (currently amended) A method for measuring catalytic activity of a test aliquot, comprising the steps of:

distributing the test aliquot into a separation medium, wherein the test aliquot includes ~~one or more~~ a plurality of macromolecular fragments resulting from the catalytic activity;

enabling said ~~one or more~~ plurality of fragments to separate within said separation medium;

digitizing an image of said ~~one or more~~ plurality of fragments to measure intensity values ~~for each fragment~~ from said image;

processing said intensity values to derive a fragment population model of said ~~one or more~~ plurality of fragments; and

analyzing said fragment population model to determine a catalytic result.

Claim 2 (currently amended) A method according to claim 1, wherein said distributing step comprises the step of:

distributing the test aliquot among a plurality of reaction wells within ~~the~~ said separation medium, wherein said processing step comprises placing said intensity values into intensity profiles, each intensity profile representing ~~one or more~~ a subset of said fragments from a corresponding reaction well.

Claim 3 (original) A method according to claim 2, further comprising the steps of:

removing an intensity value lying outside of a prescribed range; and

refitting said intensity profiles in response to said removing step.

Claim 4 (original) A method according to claim 1, further comprising the step of:

calculating intensity ratios, wherein each intensity ratio is derived from an intensity value from each of two specified fragments, wherein said intensity ratios are used to determine said catalytic result.

Claim 5 (currently amended) A method according to claim 1, ~~wherein said catalytic result is derived from~~ further comprising the step of:

<u>deriving</u> an effective dilution factor for predicting complete digestion of a fragment, <u>said effective dilution factor providing a basis for analyzing said fragment population model to determine said catalytic result</u>.

Claim 6 (currently amended) A method according to claim 1, further comprising the step of:

determining a unit call for ~~complete digestion of a fragment~~ <u>said catalytic result</u>.

Claim 7 (original) A method according to claim 6, further comprising the step

of:

determining a calibration factor for adjusting said catalytic result used to

determine said unit call.

Claim 8 (previously amended) A method according to claim 1, further

comprising the step of:

staining the test aliquot with a reporter molecule prior to said digitizing an

image step.

Claim 9 (previously amended) A method according to claim 8, wherein the test

aliquot is not de-stained prior to said digitizing an image step.

Claim 10 (currently amended) A method according to claim 1, <u>wherein said</u>

<u>macromolecular fragments comprise at least one of DNA fragments and RNA fragments,</u>

<u>and</u> wherein said enabling step comprises the step of:

performing electrophoretic separation to resolve <u>said</u> at least one of DNA

fragments and RNA fragments.

Claim 11 (currently amended) A method according to claim 1, ~~wherein said~~

~~distributing step comprises~~ <u>further comprising</u> the step of:

transferring a diluted enzyme concentration to one or more reaction

chambers to digest a DNA substrate disposed in each reaction chamber, wherein said ~~one~~

~~or more~~ <u>plurality of</u> macromolecular fragments result from the digestion of said DNA

substrate.

Claim 12 (currently amended) A method according to claim 11, ~~wherein said~~

~~distributing step further comprises~~ <u>further comprising</u> the steps of:

apportioning a buffer solution among a dilution matrix having multiple

pre-dilution tubes and multiple dilution tubes;

depositing an enzyme sample into said pre-dilution tubes to produce an

enzyme concentration; and

transferring portions of said enzyme concentration from said pre-dilution

tubes to said dilution tubes to produce said diluted enzyme concentration.

Claims 13-24 (cancelled).